Investigation of a Non-steady Flow of a Conducting Liquid in a Plane Channel With Mobile Borders

S/057/60/030/05/01/014
B012/B056

boundary problems obtained will be discrete, which simplifies the solution considerably. There are 1 figure and 5 references: 4 Soviet and 1 English.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR Leningrad (Institute of Physics and Technology of the AS USSR, Leningrad)

SUBMITTED: December 14, 1959

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UFLAND, Ya. S.

Some cases of irregular motion of a conducting liquid in an annular pipe. Zhur. tekh. fiz. 30 no.7:799-802 Jl '60. (MIRA 13:8)

1. Fiziko-tekhnicheskiy institut AN SSSR, Leningrad. (Fluid dynamics)

84736

S/057/60/030/010/018/019
B013/B063

10.8000 2307, 2407 only
3110 only
26.1410

AUTHOR: Uflyand, Ya. S.

21

TITLE: Steady Flux of a Conducting Fluid in a Right-angled Channel in the Presence of a Transverse Magnetic Field

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1960, Vol. 30, No. 10, pp. 1256 - 1258

TEXT: The author describes the plane-parallel motion of an incompressible, viscous, conducting fluid in a homogeneous magnetic field which is perpendicular to the motion of the fluid. An exact solution of this problem for the case of non-conducting channel walls was given in Ref. 1. The present paper gives an exact solution for another limiting case, i.e., for ideally conducting, right-angled channel walls. The definite solution has the form of (17). (R_m - Reynolds number; M - Hartmann number). Since the trigonometric series contained in (17) tend to zero for $b \rightarrow \infty$, the first summands constitute a one-dimensional condition corresponding to the flow between two parallel walls of perfect conduction. From this it may

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Steady Flux of a Conducting Fluid in a Right-angled Channel in the Presence of a Transverse Magnetic Field

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be · that, contrary to Hartmann's well-known solution for the case of non· ..cting walls (Ref. 2), such a one-dimensional condition may hold even .. the walls have an arbitrary and infinite conduction (Ref. 3). Contrary to the results of Ref. 1, the solution in the form of (17) is particularly convenient for calculations involving high values of the parameter $k = b/a$, i.e., for determining such corrections of the one-dimensional condition as take account of the effect of wide channels, $y = \pm b$. There are 3 references: 2 Soviet.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR, Leningrad (Institute of Physics and Technology AS USSR, Leningrad)

SUBMITTED: May 27, 1960

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S/057/60/030/010/019/019
B013/B063

10.8000 2307, 2407, 2507 only

AUTHOR: Uflyand, Ya. S.

TITLE: The Eartmann Problem for a Circular Tube

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1960, Vol. 30, No. 10, pp. 1258 - 1260

TEXT: From Refs. 1-3 it is known that for a viscous, incompressible, conducting fluid moving perpendicular to a homogeneous magnetic field (H_o), the equations of magnetohydrodynamics read as follows: $\Delta h + \frac{\partial u}{\partial \xi} = 0$, $\Delta u + M^2 \frac{\partial h}{\partial \xi} = -Q$ (1), where v_o - a characteristic velocity, a - a characteristic dimension, R_m - Reynolds number, M - Hartmann number, ν - coefficient of viscosity, P - gradient in the direction of motion. By means of substitutions the set of equations (1) can be transformed into two separate equations of the following form (4): $\Delta F - \mu^2 F = 0$, $\Delta \Phi - \mu^2 \Phi = 0$; $\mu = M/2$. The present paper deals with a circular cross

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The Hartmann Problem for a Circular Tube S/057/60/030/010/019/019
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section of radius a. Such problems may be considered to be a generalization of the well-known one-dimensional Hartmann problem. The solution of equations (4) on the axis of the tube is given by trigonometric series, where $\varrho = r/a$; r and θ are polar coordinates ($\xi = \varrho \cos \theta$); $I_n(x)$ are modified cylindrical functions. The final solution of the problem is also given. An exact solution to the corresponding problem for a ring-shaped cross section, for a flow around a cylinder, etc. may be obtained similarly. This is illustrated by formula (10) for the velocity distribution in a flow around a non-conductive cylinder which moves at a constant velocity v_0 ($K_n(x)$ - McDonald function). It is noted that in ordinary hydrodynamics, such a problem has only a trivial solution $v \equiv v_0$, whereas in magnetohydrodynamics, velocity tends to zero for $r \to \infty$. There are 4 references: 1 Soviet.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR, Leningrad (Institute of Physics and Technology AS USSR, Leningrad)

SUBMITTED: July 11, 1960

Card 2/2

30998
S/124/61/000/009/022/058
D234/D303

10.6000 1327

AUTHORS: Lebedov, N.N. and Uflyand, Ya.S.

TITLE: 3-dimensional problem of the theory of elasticity for an infinite body weakened by two plane round holes

PERIODICAL: Referativnyy zhurnal. Mekhanika, no. 9, 1961, 1, abstract 9 V6 (Tr. Leningr. politekhn. in-ta, 1960, no. 210, 39-49)

TEXT: The authors consider the axially symmetrical problem of the theory of elasticity for an infinite space containing two plane round holes (with the centers on one straight line) of the same radius, situated on parallel planes $z = 0$, $z = -2h$. On the surfaces of a hole, equal axially symmetrical distributions of normal (σ_z) and tangential (τ_{zr}) stresses are given and it is supposed that at the points of a hole belonging to its different sides the stresses are equal in magnitude and opposite in direction. Owing

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3-dimensional problem...

to the symmetry with respect to the plane $z = -h$ the problem is reduced to considering an elastic half-space $z > -h$ with the boundary conditions

$$(\sigma_z)_{z=0} = \sigma(r), \quad (\tau_{rz})_{z=0} = \tau(r)$$

$$(w)_{z=-h} = 0, \quad (\tau_{rz})_{z=-h} = 0$$

and the appropriate conditions at infinity. The solution in the regions $-h \leq z < 0$ and $0 \leq z \leq \infty$ is expressed in terms of harmonic Papkovich-Neuber functions, whose determination is reduced to two systems of even integral equations. These systems are reduced to a system of Fredholm integral equations with regular kernels. Unknown functions in the latter are determined numerically, and in terms of these, the quantities which are essential for the applications can be expressed in closed and comparatively simple form (a formula for σ_z at $z = 0$, $r > a$ is given). Numerical results are given for the case of uniform dilatation at infinity ($\sigma(r) = -q$, $\tau(r) = 0$). [Abstracter's note: Complete translation]

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UFLYAND, Ya.S.

The second basic problem in the theory of elasticity for a wedge. Trudy LPI no.210:87-94 '60. (MIRA 13:11)
(Wedges)

89399

S/040/61/025/001/020/022
B125/B204

16,7300

AUTHOR: Uflyand, Ya. S. (Leningrad)

TITLE: The torsion oscillations of a semispace

PERIODICAL: Prikladnaya matematika i mekhanika, v. 25, no. 1, 1961, 159-162

TEXT: The present paper deals with the torsional vibrations of a semi-bounded elastic body, which are produced by the rotation of a rigid cylinder connected with the semispace on a circular surface. An exact solution of this problem was given by H. F. Sagoci (Ref. 1), using wave-like spheroid functions. The problem: To a rigid stamp connected with the semispace ($z > 0$) on a circle having the radius a, the torsional moment $M = M_0 \operatorname{Re} e^{i(\nu t + \alpha)}$ is applied, where ν is the frequency of the oscillations. All equations of the elasticity theory may be satisfied, even if only one component of the displacement vector on the φ-axis (r, φ, z are the cylindrical coordinates) is assumed to be non-vanishing: $u_\varphi = \operatorname{Re}(u e^{i(\nu t + \alpha)})$, where the function $u(r,z)$ must satisfy the equation

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$\frac{\partial^2 u}{\partial r^2} + \frac{1}{r}\frac{\partial u}{\partial r} - \frac{u}{r^2} + \frac{\partial^2 u}{\partial z^2} + k^2 u = 0 \quad k = \nu\sqrt{\frac{\varrho}{G}}$ (1.3). Here ϱ is the density and G the shearing modulus. On the boundary of the semispace the conditions $u\big|_{z=0} = \varepsilon r$, $r < a$, $\frac{\partial u}{\partial z}\Big|_{z=0} = 0$, $r > a$ (1.4) must be satisfied. Here ε is the complex amplitude of the angle of rotation of the stamp, which is considered to be given when solving the problem. The tangential stress $\tau_{\varphi z} = G\frac{\partial u_\varphi}{\partial z}$ vanishes on the surface of the body outside the stamp. If the solution of (1.3) (which tends towards zero at $z \to \infty$), is represented in the form $u = \int_0^\infty e^{-z\sqrt{\lambda^2 - k^2}} J_1(\lambda r)A(\lambda)d\lambda$, one obtains the integral equations $\int_0^\infty A(\lambda)J_1(\lambda r)d\lambda = \varepsilon r$, $r < a$; $\int_0^\infty \sqrt{\lambda^2 - k^2}\, J_1(\lambda r)A(\lambda)d\lambda = 0$, $r > a$ (1.7)

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The torsion oscillations of...

for the unknown function $A(\lambda)$ from the boundary conditions (1.4). Using a method given by N. N. Lebedev, it is possible to reduce the problem under investigation to solving the regular Fredholm integral equation

$\varphi(x) - \frac{1}{\pi}\int_0^a \varphi(t)\left[\psi(t-x) - \psi(t+x)\right]dt = \frac{4\varepsilon}{\pi} x$, $0 < x < a$ (1.16). Its kernel is given by formula $\psi(y) = \frac{\pi k}{2}\left[J_1(k|y|) - iH_1(ky) + \frac{2i}{\pi}\right]$. In the second part of the paper, the numerical computations are then dealt with. (1.16) is brought to the dimensionless form

$\omega(\xi) = \xi + \frac{p}{2}\int_0^1 \omega(\tau)\left[L(\tau-\xi) - L(\tau+\xi)\right]d\tau$ with $L(y) = J_1(p|y|) - iH_1(py) + \frac{2i}{\pi}$, $p = ka$

by means of the transformation $\varphi(x) = \frac{4\varepsilon a}{\pi}\omega(\xi)$, $\xi = \frac{x}{a}$, $\tau = \frac{t}{a}$, $\psi(y) = \frac{\pi k}{2a}L(y)$.

This integral equation is solved by using the set-up $\omega(\xi) = \lambda(\xi) + i\mu(\xi)$.

A system of real integral equations is obtained for the unknown functions $\lambda(\xi)$ and $\mu(\xi)$. This system is then numerically solved by reduction to an

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The torsion oscillations of...

algebraic system. The corresponding results are given in Table 1. For the complete solution of the problem raised, the interrelation between the assumed torsional moment M_0 and the complex amplitude ε of the angle of rotation of the stamp is, in addition, necessary. After some steps,
$\varepsilon = -M_0 \left\{ 16a^3G \int_0^1 [\lambda(\tau) + i\mu(\tau)]\tau d\tau \right\}^{-1}$ (2.8) is found. Table 2 contains the values of the quantities $G_1 = -\frac{9}{16}\frac{\gamma}{\gamma^2+\beta^2}$, $G_2 = \frac{9}{16}\frac{\beta}{\beta^2+\gamma^2}$, $\varkappa = -\frac{\beta}{\gamma}$, which agree well with the corresponding numerical results obtained by H. F. Sagoci (Ref. 1). The author thanks K. A. Aristova and T. A. Chernova for carrying out the numerical computations. There are 2 tables and 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc.

SUBMITTED: October 14, 1960

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The torsion oscillations of...

Tabelle 1 Таблица 1

τ	p = 0.4		p = 0.8		p = 1.2		p = 1.6		p = 2	
	λ	μ	λ	μ	λ	μ	λ	μ	λ	μ
0.1	0.0962	0.00084	0.0870	0.0055	0.0753	0.0144	0.0624	0.0266	0.0485	0.0418
0.2	0.1925	0.00168	0.1743	0.0110	0.1514	0.0286	0.1264	0.0530	0.0996	0.0830
0.3	0.2890	0.00256	0 2623	0.0164	0.2291	0.0428	0.1932	0.0789	0.1554	0.1231
0.4	0.3857	0.00335	0.3514	0.0220	0.3092	0.0568	0.2645	0.1042	0.2183	0.1616
0.5	0.4828	0.00419	0.4417	0.0273	0.3023	0.0705	0.3416	0.1286	0.2906	0.1981
0.6	0.5803	0.00502	0.5338	0.0325	0.4793	0.0839	0.4260	0.1520	0,3743	0.2321
0.7	0.6782	0.00585	0.6279	0.0379	0.5714	0.0969	0.5187	0.1742	0.4715	0.2632
0.8	0.7768	0.00668	0.7243	0.0430	0.6690	0.1095	0.6215	0.1951	0.5841	0.2911
0.9	0.8759	0.00751	0,8234	0.0481	0.7723	0.1217	0.7352	0.2144	0.7138	0.3156
1.0	0.9758	0.00832	0.9256	0.0532	0.8826	0.1332	0.8609	0.2322	0.8620	0.3364

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The torsion oscillations of...

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Tabelle 2 Таблица 2

p	x	G_1	G_2
0.4	0.00861	0.6038	0.00520
0.8	0.05962	0.6462	0.03851
1.2	0.1651	0.6859	0.1132
1.6	0.3190	0.6922	0.2208
2.0	0.5127	0.6479	0.3922

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26743
S/040/61/025/003/020/026
D208/D304

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26.2321

AUTHOR: Uflyand, Ya.S. (Leningrad)

TITLE: On rotating the conducting fluid between two coaxial cylinders in the presence of a transverse magnetic field

PERIODICAL: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk. Prikladnaya matematika i mekhanika, v. 25, no. 3, 1961, 557 - 560

TEXT: A steady motion is considered here, of a viscous conducting incompressible fluid in the space contained between two infinite cylinders of radii a and b ($a < b$). The non-conducting inner cylinder rotates with a constant angular velocity ω, while the outer cylinder is stationary, and the transverse magnetic field is H_0. (Fig. 1) Cylindrical coordinates r, φ, z are used. The unknowns are the r, φ components of velocity vector v and of the magnetic

X

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On rotating the conducting fluid ...

field H.

$$\text{rot } E = 0 \tag{1.1}$$

(Note: rot ≡ curl) it follows that $E = E_z$ = const. In subsequent work $E_0 = 0$ is assumed, which leads to

$$\text{rot } \mathbf{H} = \frac{4\pi\sigma}{c} \mathbf{v} \times \mathbf{H}, \quad \text{div } \mathbf{H} = 0, \quad \text{div } \mathbf{v} = 0 \quad (1.2) \tag{1.2}$$

$$\rho (\mathbf{v}\nabla) \mathbf{v} = \eta \Delta \mathbf{v} - \nabla p + \frac{1}{c} \mathbf{j} \times \mathbf{H}, \quad \mathbf{j} = \frac{c}{4\pi} \text{rot } \mathbf{H}$$

where σ = conductivity of fluid, η = viscosity coefficient, ρ = density, c = velocity of light, j = current density vector, p = pressure. Introduction of

$$\mathbf{h} = \frac{\mathbf{H}}{H_0}, \quad \mathbf{u} = \frac{\mathbf{v}}{v_0}, \quad q = \frac{p}{p_0}, \quad v_0 = \omega a, \quad p = \rho v_0^2 \tag{1.3}$$

$$R = \frac{\rho}{\eta} v_0 a, \quad R_m = \frac{4\pi\sigma}{c^2} v_0 a, \quad M = \frac{H_0 a}{c} \sqrt{\frac{\sigma}{\eta}}.$$

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On rotating the conducting fluid ...

where R - Reynold's number, R_m - magnetic Reynold's number, M - Hartman's number and

$$j \cdot H = \frac{\sigma}{c}\left[(vH)\,H - H^2 v\right]$$

gives

$$\operatorname{rot} h = R_m u \times h, \qquad \operatorname{div} h = 0, \qquad \operatorname{div} u = 0$$
$$\Delta u = R\{(u\nabla)\,u + \nabla q\} + M^2\{h^2 u - (uh)\,h\} \tag{1.4}$$

where differentiation is performed w, r to $x = r/a$, $1 \leq x \leq \lambda = b/a$. (1.4) has four unknowns $u_r(r, \varphi)$, $u_\varphi(r, \varphi)$, $h_r(r, \varphi)$, $h_\varphi(r, \varphi)$, and requires 8 boundary conditions. For small Reynold and Hartman numbers, first approximation to solving the influence of flow on the magnetic field results from the solution of

$$\operatorname{rot} h_1 = u_0 \cdot h_0, \quad \operatorname{div} h_1 = 0 \tag{2.6}$$

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and on substitution

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On rotating the conducting fluid ...

$$h_{1r} = A(x) \frac{\cos \varphi}{1 - \lambda^2}, \qquad h_{1} = B(x) \frac{\sin \varphi}{1 - \lambda^2}, \tag{2.8}$$

is

$$A(x) = \frac{1}{8}\left[x^2 + \frac{1 - 2\lambda^2}{x^2}\right] + \frac{\lambda^2}{2} \ln \frac{\lambda}{x}, \quad B(x) = -\frac{1}{8}\left[3x^2 + \frac{2\lambda^2 - 1}{x^2}\right] + \frac{\lambda^2}{2}\left(1 - \ln \frac{\lambda}{x}\right) \tag{2.11}$$

Determination of the influence of the magnetic field on the fluid motion to first approximation is then described giving finally

$$y(x) = \frac{\lambda^2}{16x^3(\lambda^2 - 1)^4} \{2\lambda^2 (x^2 - 1)^2 [\lambda^2(\lambda^2 + 1) - 2x^2] \ln \lambda - 2x^4 (\lambda^2 - 1)^3 \ln x - (\lambda^2 - 1)(x^2 - 1)(\lambda^2 - x^2)[x^2(\lambda^2 + 1) - 2\lambda^2]\} \tag{2.22}$$

and

$$Z(x) = \frac{\lambda^2}{8x^3(\lambda^2 - 1)^4} \{\lambda^2 (x^2 - 1)[\lambda^2(\lambda^2 + 1)(x^2 + 1) - 4x^4] \ln \lambda - x^4 (\lambda^2 - 1)^3 \ln x - (\lambda^2 - 1)(x^2 - 1)(\lambda^2 - x^2)[\lambda^2(x^2 + 1) + x^2]\} \tag{2.23}$$

Determination of $\frac{\partial f}{\partial x}$ and $x^{-1} \frac{\partial f}{\partial \varphi}$ completes the solution in the first

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On rotating the conducting fluid ...

approximation. Rotational momentum is found by utilizing

$$F_a = -\eta \left(\frac{\partial v_\varphi}{\partial r} - \frac{v_\varphi}{r} + \frac{1}{r} \frac{\partial v_r}{\partial \varphi} \right)_{r=a} \quad (3.1)$$

which is the expression for frictional stress F_a on the surface of the rotating cylinder, and is

$$\frac{L_a}{L_a^{(0)}} = 1 + M^2 f_a(\lambda), \qquad L_a^{(0)} = 4\pi\eta v_0 a \frac{\lambda^2}{\lambda^2 - 1} \quad (3.4)$$

Also

$$f_a(\lambda) = \frac{4\lambda^4 \ln \lambda - (3\lambda^2 - 1)(\lambda^2 - 1)}{16\lambda^2 (\lambda^2 - 1)} \quad (3.5)$$

is positive for all $\lambda > 1$. For a fixed cylinder, corresponding frictional stresses and momenta on r = b are

$$\frac{F_b}{F_b^{(0)}} = 1 - \frac{M^2}{2}(\lambda^2 - 1)[\psi'(\lambda) + \varkappa'(\lambda)\cos 2\varphi], \qquad F_b^{(0)} = -\frac{\eta v_0}{a} \frac{2}{\lambda^2 - 1} \quad (3.6)$$

$$\frac{L_b}{L_b^{(0)}} = 1 - M^2 f_b(\lambda), \qquad f_b(\lambda) = \frac{\lambda^4 - 1 - 4\lambda^2 \ln \lambda}{16(\lambda^2 - 1)}, \qquad L_b^{(0)} = -L_a^{(0)}$$

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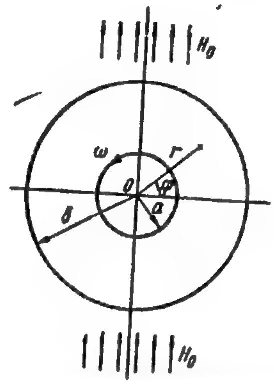
On rotating the conducting fluid ... S/040/61/025/003/020/026
D208/D304

and it is shown that magnetodynamic effects always intensify friction on the rotating surface and reduce it on the stationary surface. There are 1 figure and 1 Soviet-bloc reference.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR (Physico-Technical Institute, AS USSR)

SUBMITTED: October 15, 1960

Fig. 1.



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CHEKMAREV, I.B. (Leningr... UFLYAND ..S. (Leningrad)

Some possibilities of ...ating the motion of a conducting liquid with the aid of mutually opposed magnetic fields. Prikl. mat. i mekh. 2. no.5:845-850 S-O '61. (MIRA 14:10)
(Magnetohydrodynamics)

31715
S/057/61/031/012/001/013
B108/B138

24.4300

AUTHOR: Uflyand, Ya. S.

TITLE: Irregular flow of conducting liquid through a pipe of constant cross section in a transverse magnetic field

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 12, 1961, 1409-1419

TEXT: The external magnetic field H_0 is assumed to be in the Ox direction, the flow velocity v and the induced magnetic field in the Oz direction. The functions v(x,y,t) and H(x,y,t) satisfy the equations

$$\eta \Delta v + \frac{H_0}{4\pi}\frac{\partial H}{\partial x} = \rho \frac{\partial v}{\partial t} - P, \quad \frac{c^2}{4\pi\sigma}\Delta H + H_0\frac{\partial v}{\partial x} = \frac{\partial H}{\partial t} \quad (1.1)$$

where P = pressure gradient in the Oz direction. Then the electrical field and current density in the liquid are in the xOy plane

$$E_x = \frac{c}{4\pi\sigma}\frac{\partial H}{\partial y}, \quad E_y = -\left(\frac{c}{4\pi\sigma}\frac{\partial H}{\partial x} + \frac{vH_0}{c}\right), \quad j_x = \frac{c}{4\pi}\frac{\partial H}{\partial y}, \quad j_y = -\frac{c}{4\pi}\frac{\partial H}{\partial x} \quad (1,2)$$

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Pressure in the liquid is $p = -\left(Pz + \frac{H^2}{8\pi}\right) + \text{const.}$ (1.3). Eq. (1.1) is rewritten in the dimensionless form

$\Delta u + M^2 \frac{\partial h}{\partial \xi} = R \frac{\partial u}{\partial \tau} - Q$, $\Delta h + \frac{\partial u}{\partial \xi} = R_m \frac{\partial h}{\partial \tau}$ (1.4) where $u = \frac{v}{v_o}$, $h = \frac{H}{H_o R_m}$, $\tau = \frac{v_o t}{l}$, $Q = \frac{Pl^2}{v_o \eta}$, $\xi = \frac{x}{l}$, $\eta = \frac{y}{l}$ (1.5). $M = \frac{H_o l}{c}\sqrt{\frac{\sigma}{\eta}}$, is the Hartmann number; $R = \frac{\rho}{\eta} v_o l$ and $R_m = \frac{4\pi\sigma}{c^2} v_o l$, respectively, are the dynamic and the magnetic Reynolds numbers. If the system (1.4) is subjected to a Laplacian integral transformation with zero initial conditions, one obtains $\Delta \bar{u} + M^2 \frac{\partial \bar{h}}{\partial \xi} - Rp\bar{u} = -\frac{Q}{p}$, $\Delta \bar{h} + \frac{\partial \bar{u}}{\partial \xi} - R_m p\bar{h} = 0$ (1.7). For a rectangular pipe with non-conducting walls one has to introduce the

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boundary conditions

$$\mathfrak{u}\big|_{\eta=\pm1}=\mathfrak{u}\big|_{\xi=\pm k}=\mathfrak{h}\big|_{\eta=\pm1}=\mathfrak{h}\big|_{\xi=\pm k}=0;\quad \xi=\frac{x}{b},\quad \eta=\frac{y}{b},\quad k=\frac{a}{b}, \qquad (2,1)$$

with l = b. The solution can then be obtained as a series in the form

$$\mathfrak{u}=\sum_{n=0}^{\infty}u_n(\xi)\cos\lambda_n\eta,\quad \mathfrak{h}=\sum_{n=0}^{\infty}h_n(\xi)\cos\lambda_n\eta,\quad \lambda_n=\frac{2n+1}{2}\pi, \qquad (2,2)$$

If the walls are ideally conducting the boundary conditions

$$\frac{\partial\mathfrak{h}}{\partial\xi}\Big|_{\xi=\pm1}=\frac{\partial\mathfrak{h}}{\partial\eta}\Big|_{\eta=\pm\varkappa}=0,\quad \xi=\frac{x}{a},\quad \eta=\frac{y}{a},\quad \varkappa=\frac{b}{a} \qquad (3,1)$$

with l = a are valid. The solution is then obtained as a Fourier series of X

Irregular flow of conducting...

the variable x

$$\bar{u}=\sum_{n=0}^{\infty}u_n(\eta)\cos\lambda_n\xi,\quad \bar{h}=\sum_{n=0}^{\infty}h_n(\eta)\sin\lambda_n\xi,\quad \lambda_n=\frac{2n+1}{2}\pi, \qquad (3,2).$$

The problem of a circular tube with nonconducting walls ($\bar{u} = \bar{h} = 0$) in the case of $R = R_m$ leads to the solution of the Helmholtz equation $\Delta F - \omega^2 F = 0$, $\omega = \sqrt{Rp + \frac{1}{4}M^2}$ with the boundary condition $F|_{\rho=1} = -\frac{Q}{Rp^2}\exp(\frac{M}{2}\cos\theta)$ where $\rho = \frac{r}{l}$. l is the radius of the pipe, r and θ the polar coordinates. There are 1 figure and 9 references: 7 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: I. A. Shercliff. Proc. of the Cambr. Phil. Soc., 49, 1, 136, 1953; H. Hasimoto, J. of Fluid Mech., 8, 1, 61, 1960.

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Irregular flow of conducting... S/057/61/031/012/001/013
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ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR Leningrad (Physicotechnical Institute imeni A. F. Ioffe AS USSR, Leningrad)

SUBMITTED: March 22, 1961

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26.1410

AUTHORS: Sakhnovskiy, E.G., and Uflyand, Ya.S. (Leningrad)

TITLE: Effect of anisotropic conductivity on unsteady flow of a conducting gas in a flat channel

PERIODICAL: Prikladnaya matematika i mekhanika, v. 26, no. 3, 1962, 542 - 547

TEXT: Unsteady flow of a weakly ionized inviscid gas between parallel plates is investigated in the presence of a transverse magnetic field. It is assumed that $\omega_i \tau_i \ll 1$ for ions (ω being the cyclotron frequency and τ the mean time-interval between collisions). This permits neglecting ion-slip (with respect to the gas). After introducing dimensionless quantities:

$$u = \frac{v}{v_0}, \quad h = \frac{H}{H_0}, \quad e = \frac{E}{v_0 H_0}, \quad \zeta = \frac{z}{a}, \quad \tau = \frac{v_0 t}{a}$$

$$P = \frac{P_x a}{\rho v_0^2}, \quad R_m = 4\pi\sigma a v_0, \quad S = \frac{H_0^2 \sigma a}{\rho v_0}, \quad \beta = \omega_e \tau^* \frac{H_0}{H} = \frac{e}{m} H_0 \tau^* \qquad (1.3)$$

(where a is half the distance between the plates), the equations of

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magnetohydrodynamics become

$$\frac{\partial h_x}{\partial \tau} = \frac{1}{R_m}\left(\frac{\partial^2 h_x}{\partial \zeta^2} + \beta \frac{\partial^2 h_y}{\partial \zeta^2}\right) + \frac{\partial u_x}{\partial \zeta}, \qquad \frac{\partial h_y}{\partial \tau} = \frac{1}{R_m}\left(\frac{\partial^2 h_y}{\partial \zeta^2} - \beta \frac{\partial^2 h_x}{\partial \zeta^2}\right) + \frac{\partial u_y}{\partial \zeta} \tag{1.4}$$

$$\frac{\partial u_x}{\partial \tau} = P + \frac{S}{R_m}\frac{\partial h_x}{\partial \zeta}, \qquad \frac{\partial u_y}{\partial \tau} = \frac{S}{R_m}\frac{\partial h_y}{\partial \zeta}$$

The Laplace transform is applied to these equations and the general solution of the problem is obtained. Thereby the formulas for the velocities u_x and u_y are:

$$u_x = P\tau + \mathrm{Re}\,\psi, \qquad u_y = -\mathrm{Im}\,\psi \tag{2.18}$$

where

$$\psi = -\frac{PS}{R_m}\frac{1}{2\pi i}\int_{b-i\infty}^{b+i\infty} \frac{\gamma \,\mathrm{ch}\, \gamma\zeta}{p/\gamma \,\mathrm{ch}\, \gamma + \sqrt{p/R_m}\,\mathrm{sh}\,\gamma}\frac{\exp(p\tau)}{p^2}\,dp \tag{2.19}$$

In general, the calculations for reducing the obtained solution to real form, are rather cumbersome. Therefore the author considers only the particular case of ideally conducting walls, which can be solved readily. By using the theorem of residues, the solution of the problem is obtained in real form. It was found that in the case

Effect of anisotropic conductivity ... S/040/62/026/003/016/020
D407/D301

of ideally conducting walls, a stationary regime exists, in which the gas flows uniformly (with velocity v_x^o) in the direction of the applied pressure gradient P_x, and also (with velocity v_y^o) in the perpendicular direction. Thereby, a direct current flows through the gas. By setting $\beta = 0$, one obtains the solution for the case of isotropic conductivity. Thereby the transient regime is aperiodic. With $\beta \neq 0$ (anisotropic conductivity), the transient regime assumes an entirely different character: oscillations of frequency $\beta\lambda$ arise at any (arbitrarily small) magnetic Reynolds number R_m. There are 4 figures.

SUBMITTED: February 3, 1962

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41507

S/040/62/026/005/004/016
D234/D308

AUTHOR: Uflyand, Ya. S. (Leningrad)

TITLE: Non-stationary plane-parallel flow of a viscous electrically conducting gas, taking into account the anisotropy of the conductivity

PERIODICAL: Prikladnaya matematika i mekhanika, v. 26, no. 5, 1962, 836-841

TEXT: The author considers the motion of an ionized viscous gas between two parallel conducting plates in the presence of transverse magnetic field. It is assumed that the viscosity coefficient is isotropic and Ohm's law is applied in the form

$$\bar{j} + \frac{\omega_e \tau^*}{H} \bar{j} \times \bar{H} = \sigma(\bar{E} + \bar{v} \times \bar{H}) \qquad (1.1)$$

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where ω_e is the cyclotron frequency of the electrons, τ^* the mean time between collisions of electrons with ions and neutral atoms. The velocity and the induced magnetic field depend only on the transversal coordinate z and on time. The author introduces dimensionless quantities $u = v/v_0$, $h = H/H_0$ and solves the basic equations by means of Laplace transformation, obtaining v and h in the form of complex integrals. Assuming that the conductivity of the gas σ is small in comparison with that of the walls σ^* and that the viscous Reynolds number is much larger than the magnetic Reynolds number, the approximate solution is

$$u_x - iu_y = \frac{1}{2\pi i} \int_{b-i\infty}^{b+i\infty} \frac{Q}{\gamma^2} \left(1 - \frac{ch\,\gamma\zeta}{ch\,\gamma}\right) \exp (p\tau) dp$$

$$h_x - ih_y = \frac{R_m}{\alpha} \frac{1}{2\pi i} \int_{b-i\infty}^{b-i\infty} \frac{Q}{\gamma^2} \left(\frac{sh\gamma\zeta}{\gamma ch\gamma} - \zeta \right) \exp(p\tau) dp$$

$$\left(\gamma = \sqrt{Rp + \frac{M^2}{\alpha}} \right) \tag{3.2}$$

where Q is a constant, p the pressure, $R = \rho v_0 a/\eta$, ρ the density, 2a the distance between the plates, $M = H_0 a \sqrt{(\sigma/\eta)}$, $R_m = 4\pi\sigma v_0 a$, $\alpha = 1 + \beta i$, $\beta = eH_0\tau^*/m$. Series expansions are given for the case of constant pressure gradient along the x axis. If the conductivity is anisotropic ($\beta \neq 0$) the transition regime contains periodic functions. Graphs of flow are given. S. A. Regirer and A. K. Musin

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are mentioned for their contributions in the field. There are 2 figures.

SUBMITTED: June 4, 1962

S/057/62/032/002/020/022
B124/B102

24.2120

AUTHORS: Uflyand, Ya. S., and Kanev, A. N.

TITLE: The influence of the anisotropy in conductivity on the flow of a conducting gas through pipes

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 2, 1962, 249 - 252

TEXT: The flow of a viscous, incompressible, electrically conducting fluid in a pipe with constant diameter in the presence of an external magnetic field is examined on the assumptions that the viscosity coefficient η of the weakly ionized gas be a scalar quantity, and that the effect of ion slide relative to the medium be negligible. Ohm's law can be written as $\vec{j} + \frac{\omega\tau}{H(0)}\left[\vec{j}\times\vec{H}\right] = \sigma\left\{\vec{E} + \frac{[\vec{v}\times\vec{H}]}{c}\right\}$, $\omega = \omega_e \frac{H(0)}{H}$, where $\vec{j}$ is the current density, ω_e is the electron Larmor frequency, τ is the mean free time, σ is the conductivity, $\vec{v}$ is the flow rate of the gas and c is the velocity of light. Assuming the Reynolds number to be small, the magneto-hydrodynamic equation $\eta\Delta\vec{v} - \rho(\vec{v}\nabla)\vec{v} - \nabla p + \frac{1}{4\pi}$ curl $[\vec{H}\times\vec{H}] = 0$, curl $\vec{E} = 0$, div $\vec{v} = 0$, div $\vec{H} = 0$ is

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solved by expansions: $\vec{v} = \vec{v}_0 + R_m\vec{v}_1 + \dots$, $\vec{H} = \vec{H}_0 + R_m\vec{H}_1 + \dots$, $p = p_0 + R_m p_1 + \dots$ (3), where ρ is the density, and p is the pressure. The system of first-approximation equations is

$$\left.\begin{aligned}&\eta\Delta\mathbf{v}_1 - \rho(\mathbf{v}_1\nabla)\mathbf{v}_0 - \nabla\left[p_1 + \frac{(\mathbf{H}_0\mathbf{H}_1)}{4\pi}\right] + \frac{1}{4\pi}(\mathbf{H}_0\nabla)\mathbf{H}_1 = 0,\\ &\Delta\mathbf{H}_1 - \omega\tau(\mathbf{l}\nabla)\,\mathrm{rot}\,\mathbf{H}_1 + \frac{1}{ul}(\mathbf{H}_0\nabla)\mathbf{v}_0 = 0;\ \mathrm{div}\,\mathbf{v}_1 = 0;\ \mathrm{div}\,\mathbf{H}_1 = 0,\end{aligned}\right\} \quad (7),$$

or, in scalar quantities,

$$\left.\begin{aligned}&\eta\Delta v_{1x} - \frac{\partial}{\partial x}\left[p_1 + \frac{(\mathbf{H}_0\mathbf{H}_1)}{4\pi}\right] + \frac{H^{(0)}}{4\pi}\frac{\partial H_{1x}}{\partial x} = 0,\\ &\eta\Delta v_{1y} - \frac{\partial}{\partial y}\left[p_1 + \frac{(\mathbf{H}_0\mathbf{H}_1)}{4\pi}\right] + \frac{H^{(0)}}{4\pi}\frac{\partial H_{1y}}{\partial x} = 0,\\ &\eta\Delta v_{1z} - \rho\left(v_{1x}\frac{\partial v_{0z}}{\partial x} + v_{1y}\frac{\partial v_{0z}}{\partial y}\right) + \frac{H^{(0)}}{4\pi}\frac{\partial H_{1z}}{\partial x} = 0,\\ &\Delta H_{1x} - \omega\tau\frac{\partial^2 H_{1z}}{\partial x\partial y} = 0,\quad \Delta H_{1y} + \omega\tau\frac{\partial^2 H_{1z}}{\partial x^2} = 0,\\ &\Delta H_{1z} - \omega\tau\frac{\partial}{\partial x}\left(\frac{\partial H_{1y}}{\partial x} - \frac{\partial H_{1x}}{\partial y}\right) + \frac{H^{(0)}}{ul}\frac{\partial v_{0z}}{\partial x} = 0,\\ &\frac{\partial v_{1x}}{\partial x} + \frac{\partial v_{1y}}{\partial y} = 0,\quad \frac{\partial H_{1x}}{\partial x} + \frac{\partial H_{1y}}{\partial y} = 0.\end{aligned}\right| \quad (8).$$

For the longitudinal field H_{1z}, one obtains

$$(1+\omega^2\tau^2)\frac{\partial^2 H_{1z}}{\partial x^2}+\frac{\partial^2 H_{1z}}{\partial y^2}=-\frac{H^{(0)}}{ul}\frac{\partial v_{0z}}{\partial x}, \quad (9).$$

If the pipe walls are non-conductive, the boundary condition $H_{1z}|_{(B)} = 0$ is obtained for H_{1z}. The transverse magnetic fields H_{1x} and H_{1y} are given by $v_{1x} = \frac{\delta f}{\delta y}$ and $v_{1y} = -\frac{\delta f}{\delta x}$; and from Eq. (8) one obtains $\Delta\varphi = \omega t\frac{\delta H_{1z}}{\delta x} = \phi(x, y)$ (16). Since, in the non-conductive walls, $\Delta\varphi = 0$, φ is given by

$$\varphi=\frac{1}{2\pi}\iint_{(B)}\Phi(\xi,\eta)\ln[(x-\xi)^2+(y-\eta)^2]\,d\xi d\eta. \quad (17).$$

Induced magnetic fields are generated not only in the gas but also in the walls of the pipe. Thus, the problem under consideration results in the determination of the boundary conditions for the Poisson equation, in an equation of type (9), and, finally, in the biharmonic problem. As an example, the flow in a pipe of elliptic profile is considered. There are 1 figure and 5 references: 3 Soviet and 2 non-Soviet. The reference to the English-language publication reads as follows: I. Shercliff, Proc. of

Card 3/4

The influence of the ...

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B124/B102

the Cambr. Phil. Soc. 49, 1, 136, 1953.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute imeni A. F. Ioffe, AS USSR, Leningrad)

SUBMITTED: July 17, 1961

Card 4/4

PHASE I BOOK EXPLOITATION SOV/6588

Ufl'yand, Yakov Solomonovich

Integral'nyye preobrazovaniya v zadachakh teorii uprugosti (Integral Transformations in Problems on the Theory of Elasticity) Moscow, Izd-vo AN SSSR, 1963. 366 p. 4000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Fiziko-tekhnicheskiy institut im. A. F. Ioffe.

Resp. Ed.: G. A. Grinberg, Corresponding Member, Academy of Sciences SSSR; Ed. of Publishing House: N. V. Travin; Tech. Ed.: L. M. Galiganova.

PURPOSE: The book is intended for scientific workers and engineers working with the theory of elasticity and its applications and for lecturers and aspirants in schools of higher education.

COVERAGE: The book deals with problems of the static theory of elasticity solvable by integral transformation. Various methods of integral transformations used for solving boundary

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value problems are presented systematically. In addition to classic problems, the book discusses complex mixed boundary value problems solved by means of special integral transforms. The author thanks N. N. Lebedev, K. A. Aristova, T. A. Chernova, and A. Ya. Chernyak. There are 241 references, 149 Soviet and 92 non-Soviet.

TABLE OF CONTENTS [Abridged]:

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001857820009-1"

UFLYAND, Ya.S.

Behavior of stresses in the angular point of a wedge. Trudy LPI no.226:109-113 '63. (MIRA 16:9)

(Wedges)

L 17444-63 EWT(l)/EDS/ES(v)-2 AFFTC/ASD/ESD-3/IJP(C)/SSD Pab-4

S/0040/63/027/004/0740/0744

62

ACCESSION NR: AP3004122

AUTHOR: Uflyand, Ya. S. (Leningrad)

TITLE: Oscillating elastic bodies of finite conductivity in a transverse magnetic field

SOURCE: Prikladnaya matematika i mekhanika, v. 27, no. 4, 1963, 740-744

TOPIC TAGS: elasticity, magnetoelasticity, oscillation, magnetic field

ABSTRACT: The author studies some magnetoelastic processes arising in bodies of finite conductivity. With the help of the method of integral transforms, he gives an exact solution of the plane problem of magnetoelastic oscillations of an unbounded body in a transverse magnetic field under the influence of arbitrary spatial forces. The system of governing differential equations consists of dynamic equations from elasticity theory containing ponderomotive forces

$$G\Delta u + (\lambda + G)\,\mathrm{grad}\,\mathrm{div}\,u + F + \frac{\mu}{c}\,j \times H = \rho\frac{\partial^2 u}{\partial t^2} \qquad (1)$$

and equations of electrodynamics for moving media (displacement current being

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UFLYAND, YA.S. (Leningrad)

"Dual integral equations in elasticity"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 January - 5 February 1964.

UFLYAND, Ya.S.

Propagation of oscillations in composite electric lines. Inzh.-fiz. zhur. 7 no.1:89-92 Ja '64. (MIRA 17:2)

1. Elektrotekhnicheskiy institut imeni V.I.Ul'yanova (Lenina), Leningrad.

TOPIC TAGS: magnetoelasticity, elastic wave

displacement u of points in the medium by the expression:

where ε is the dielectric constant, μ is the magnetic permeability, σ is the

the theory of elasticity have the form:

$$G\Delta u + (\lambda + G)\,\mathrm{grad}\,\mathrm{div}\,u + F + P = \rho\frac{\partial^2 u}{\partial t^2},$$

where λ and G are the Lamé coefficients, ρ is the density, and P is determined from the equation:

$$P = \frac{\mu\sigma}{c}\left\{\frac{\mu}{c}\left[\frac{\partial u}{\partial t} \times H\right] \times H + H \times \mathrm{grad}\,f\right\}.$$

The displacement u and potential f can then be found for a particular problem, a[illegible] the induced magnetic field h can be determined from the expression:

$$\Delta h = -\frac{[illegible]}{c^2}\,\mathrm{rot}\left[\frac{\partial [illegible]}{\partial t} \times H\right].$$

The particular case is considered of plane oscillations (in the x-y plane) in an infinite elastic solid in a transverse magnetic field, [illegible]

The displacement u is expressed in terms of the elastic potentials by the usual formula, $u = \mathrm{grad}\,\varphi + [illegible]$. General expressions for φ and ψ are obtained, and it is found that h and f are given by

L 52340-65
ACCESSION NR: AP5013386

and $f = -\frac{\mu \mathfrak{f}}{c} \frac{\partial \psi}{\partial t}$.

Additional calculations are made to obtain Φ and ψ in the case of an initial [illegible] direction, [illegible] ...

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SUB[illegible] [illegible] SUB CODE: ME, EM

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L 3615-66 EWT(1)

ACCESSION NR: AP5024026 UR/0057/65/035/009/1532/1536

44,55 537.212 38

AUTHOR: Rukhovets, A.N.; Uflyand, Ya. S. 44,55 35 B

TITLE: Electrostatic field of a pair of thin spherical shells (axially symmetric problem) 21,44,55

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 9, 1965, 1532-1536

TOPIC TAGS: integral equation, mathematic analysis, mathematic method, Fredholm equation, Laplace equation, electric field, electric capacitance

ABSTRACT: The authors discuss the electric field and capacitance of a pair of spherical caps disposed as shown in the enclosure. The problem is treated in toroidal coordinates α, β, in which Laplace's equation admits separation of variables. Integral expressions involving four unknown functions are thus obtained for the potentials in regions (1) and (2) (see the figure). The number of unknown functions is reduced to two with the aid of the condition that the potential be continuous at the boundary between regions (1) and (2), and four integral equations for the two remaining unknown functions are derived from the remaining boundary conditions (constant potentials on the caps and continuous potential gradient on

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ACCESSION NR: AP5024026

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the free portion of the boundary). These integral equations are now reduced to two coupled Fredholm integral equations for two unknown functions; it is this transformation (which takes up nearly two pages) that makes the paper interesting. These equations can be solved by numerical methods or, in some cases, by perturbation methods. The solutions are not discussed. The capacity is expressed directly in terms of the solutions of the Fredholm integral equations. Orig. art. has: 30 formulas and 1 figure.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A.F.Ioffe AN SSSR, Leningrad (Physico-technical Institute, AN SSSR) 44,55

SUBMITTED: 23Jan65 ENCL: 01 SUB CODE: MA,EM

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ACCESSION NR: AP5024026 ENCLOSURE: 01

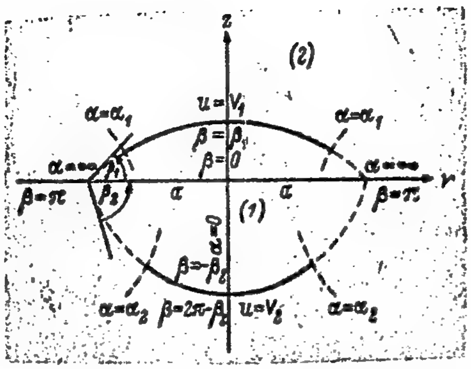

Figure 1.

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L 5385-66 EWT(1)
ACC NR: AP5027281 SOURCE CODE: UR/0207/65/000/005/0120/0123

AUTHORS: Uflyand, Ya. S. (Leningrad); Chekmarev, I. B. (Leningrad) 44,55 44,55

ORG: none

37
B

TITLE: On electric conductivity change of ionized gas in the initial part of a plane channel 21,44,55

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 5, 1965, 120-123

TOPIC TAGS: ionized gas, seeded gas, temperature distribution, equilibrium ionization, Laplace transform

ABSTRACT: The ionization process and temperature distribution in the entrance section of a plane, infinite channel ($x \geq 0, |y| < a$) is studied analytically. At time $t = 0$ and $x = 0$ an easily ionizable seeding gas is added to the flow at the rate $n = n_0 f(t)$ and temperature $T = T_0 g(t)$. The wall temperature at $t = 0$ is assumed to be T_0 which is the same temperature as that of the incoming gas. The governing flow equations are given by the species and energy conservation laws

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ACC NR: AP5027281

$$\frac{\partial n}{\partial t}+v\frac{\partial n}{\partial x}=D\frac{\partial^2 n}{\partial y^2},\quad \frac{\partial T}{\partial t}+v\frac{\partial T}{\partial x}=\frac{\lambda}{\rho c_p}\frac{\partial^2 T}{\partial y^2},$$

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and the wall conduction equation

$$\frac{\partial T_w}{\partial t}=\frac{\lambda_w}{\rho_w c_w}\frac{\partial^2 T_w}{\partial y^2}.$$

These equations are nondimensionalized as follows

$$\beta=\frac{n}{n_0},\quad \theta=\frac{T-T_0}{T_0},\quad \tau=\frac{vt}{a},\quad \xi=\frac{x}{a},\quad \eta=\frac{y}{a}.$$

The ionization rate is governed by the Saha equation, and the electric conductivity is expressed by the simplified expression

$$\sigma=\frac{n_e e^2\tau_e}{m_e}\qquad\left(\tau_e=\frac{l_e}{v_e},\quad v_e=\frac{\sqrt{8kT}}{\sqrt{\pi m_e}}\right).$$

A formal solution is obtained by using Laplace transforms. Then the analysis is simplified by assuming $f(\mathcal{T}) = 1$ and $g(\mathcal{T}) = m$. For the special case of $\alpha = 0$

$$a=\frac{1}{x\sqrt{\delta_w}}$$

the temperature distribution is given by

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ACC NR: AP5027281

$$\theta|_{\tau>\xi} = \frac{4}{\pi}(m-1)\sum_{k=0}^{\infty}\frac{(-1)^k}{2k+1}\cos\frac{2k+1}{2}\pi\eta\exp\left[-\frac{\xi}{6}\left(\frac{2k+1}{2}\pi\right)^2\right].$$

It is shown that the physical properties of the channel walls do not affect the electric conductivity in the channel core. A second example is also considered where the temperature field is assumed to be oscillating with $g(\tau) = 1 + \nu \sin \omega\tau$. Orig. art. has: 28 equations.

SUB CODE: ME, EM SUBM DATE: 06Apr65/ ORIG REF: 004/ OTH REF: 001

Card 3/3

L 2550-66 EWT(d)/T IJP(c)
ACCESSION NR: AP5023359 UR/0020/65/164/001/0070/0072

44,55 24 21 B

AUTHORS: Uflyand, Ya. S.; Yushkova, Ye. A. 44,55

TITLE: Solution of the Dirichlet problem for a finite wedge by means of special integral transforms with cylindrical functions 16,44,55

SOURCE: AN SSSR. Doklady, v. 164, no. 1, 1965, 70-72

TOPIC TAGS: Dirichlet problem, integral transform, cylinder function

ABSTRACT: Integral transforms with cylindrical functions of imaginary arguments are used to solve the Dirichlet problem exactly in the domain bounded by the cylindrical surface r = a and the planes $\theta = \theta_1$, $\theta = \theta_2$, z = 0, z = l. Let $u(r,\theta,z)$ be harmonic in the above designated space, then

$$u(r, \theta, z) = \sum_{n=1}^{\infty} u_n(r, \theta) \sin n\pi \frac{z}{l}$$

where u_n satisfies the equation

$$\frac{1}{x}\frac{\partial}{\partial x}\left(x\frac{\partial u_n}{\partial x}\right)+\frac{1}{x^2}\frac{\partial^2 u_n}{\partial \theta^2}-u_n=0, \quad x=\frac{n\pi r}{l},$$

$$u_n(a, \theta)=0, \quad u_n(0, \theta)<\infty.$$

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ACCESSION NR: AP5023359 3

It is shown that this solution possesses a continuous spectra of eigenvalues. Consequently u_n can be expressed by

$$u_n = \int_0^\infty [F_1(\tau)\,\mathrm{sh}\,(\theta_2 - \theta)\tau + F_2(\tau)\,\mathrm{sh}\,(\theta - \theta_1)\tau]\, y(x, \tau) \frac{d\tau}{\mathrm{sh}\,(\theta_2 - \theta_1)\tau}.$$

The remainder of the problem is devoted to showing that $F(\tau)$ can be represented by the integral transform

$$f(x) = \int_0^\infty F(\tau)\, y(x, \tau)\, d\tau \quad (0 < x < a),$$

where f(x) is calculated to be

$$f(x) = \frac{2}{\pi^2}\int_0^\infty y(x, \tau) \frac{\tau\,\mathrm{sh}\,\pi\tau}{|I_{i\tau}(a)|^2} d\tau \int_0^a f(\xi)\, y(\xi, \tau) \frac{d\xi}{\xi}.$$

Orig. art. has: 24 equations.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe, Akademii nauk SSSR (Physico-Technical Institute, Academy of Sciences, SSSR) 44,55

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L 2550-66

ACCESSION NR: AP5023359

SUBMITTED: 27Feb65 ENCL: 00 SUB CODE: MA, ME

NO REF SOV: 003 OTHER: 001

Card 3/3 kd

UFLYAND, Ya.S. (Leningrad)

Approximate method for solving magnetoelasticity problems for bodies of finite conductivity. PMTF no.2:155-157 Mr-Ap '65. (MIRA 18:7)

LOZANOVSKAYA, I.T.; UFLYAND, Ya.S.

A class of problems in mathematical physics with a mixed spectrum of eigenvalues. Dokl. AN SSSR 164 no.5:1005-1007 O '65.

(MIRA 18:10)

1. Fiziko-tekhnicheskiy institut im. A.F.Ioffe AN SSSR. Submitted March 4, 1965.

KUZIMIN, Yu.N. (Leningrad); UFLYAND, Ya.S. (Leningrad)

Axisymmetric problem in elasticity theory for a half-space weakened by a plane circular slot. Prikl. mat. i mekh. 29 no.6:1132-1137 N-D '65. (MIRA 19:2)

1. Submitted April 12, 1965.

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ACC NR: AP6012546 SOURCE CODE: UR/0040/66/030/002/0271/0277

AUTHORS: Rukhovets, A. N. (Leningrad); Uflyand, Ya. S. (Leningrad)

ORG: none

TITLE: A class of paired integral equations and their application to the theory of elasticity

SOURCE: Prikladnaya matematika i mekhanika, v. 30, no. 2, 1966, 271-277

TOPIC TAGS: elasticity theory, integral equation, boundary value problem, Fredholm equation, function

ABSTRACT: The following pair of integral equations is studied:

$$\int_0^\infty A(\tau) P^m_{-1/2+i\tau}(\operatorname{ch}\alpha)[1+g(\tau)]\,d\tau = f(\alpha) \qquad (0<\alpha<\alpha_0)$$

$$\int_0^\infty \tau A(\tau) P^m_{-1/2+i\tau}(\operatorname{ch}\alpha)\operatorname{th}\pi\tau\,d\tau = 0 \qquad (\alpha_0<\alpha<\infty),$$

In these equations A is the function to be evaluated, g and f are given functions, and $P^m_{-1/2+i\tau}(\operatorname{ch}\alpha)$ is an associated spherical function. It is shown that this

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ACC NR: AP6012546

analysis is reduced to calculating the function $\varphi(x)$ where

$$\varphi(x)+\frac{1}{\pi}\int_0^{\alpha_0}[G(t+x)+G(t-x)]\,\varphi(t)\,dt=\Phi(x),$$

$$G(y)=\int_0^{\infty}g(\tau)\cos\tau y\,d\tau.$$

To these integral equations correspond a class of boundary value problems in potential theory and the theory of elasticity with displaced boundary conditions. As a general example the case of a spherical segment is considered (see Fig. 1) where the harmonic function $u(r,\theta,z)$ is zero on the spherical boundary, and at $z = 0$ the following are true

$$u=f(r,\theta),\quad 0<r<a;\qquad \partial u/\partial z=0,\quad a<r<b.$$

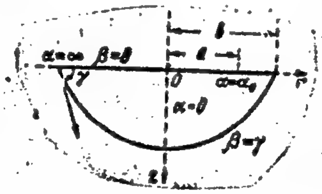

Fig. 1

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This example can be extended to the case where at $z = 0$ and $0 < r < a$, a second order homogeneous boundary condition is given, and at $z = 0$ and $a < r < b$, the function u is given. The above results are applied to the case of a rigid circular die under torsional stress. Orig. art. has: 43 equations and 2 figures.

SUB CODE: 12/ SUBM DATE: 20Jun65/ ORIG REF: 006/ OTH REF: 001

Card 3/3

UFLYAND, Yuliy Mikhaylovich, prof.; DONSKAYA, L.V., red.

[Physiology of the motor apparatus in man] Fiziologiia dvigatel'nogo apparata cheloveka. Leningrad, Meditsina, 1965. 362 p. (MIRA 18:11)

UFLYAND, YU. M.

Zelenina, Ye. V., Kunevich, V. G., and Uflyand, Yu. M. "The status of the receptor functions of children suffering from the consequences of poliomyelitis", Sbornik nauch. trudov (M-vo zdravookhraneniya RSFSR. Resp. nauch.-issled. in-t vosstanovleniya trudosposobnosti fiz. defektivnykh detey im. prof. Turnera), Leningrad, 1948, p.19-39.

SO: U - 3042, 11 March 53, (Letopis "Zhurnal "nykh Statey, No. 7, 1949)

UFLYAND, YU. M.

Uflyand, Yu. M. and Plotnikova, C.V.

"Physiological characteristics of the shin muscles based on data of chronaximetry in congenital toe-in", Sbornik nauch. trudov (M-vo zdravookhraneniya RSFSR. Resp. nauch.-issled. in-t vosstanovleniya trudosposobnosti fiz. defektivnykh detey im. prof. Turnera), Leningrad, 1948, p. 307-27.

SO: U - 3042, 11 March 53, (Letopis "Zhurnal "nykh Statey, No. 7, 1949).

UFLYAND, YU. M.

27899

Vzaimottnosheniya Tsentrov i Periferii S Sovremennoy Tochki Zreniya : Trudi Leningr. San-Gigyen. Med in-ta. T II, 1949, s. 9-28 - Bibliog: s. 115-16.

SO: Letopis' Zhurnal'nykh Statey, Vol. 37, 1949

1. UFLYAND, YU.M.

2. USSR (600)

4. Medicine

7. Principal stages in the development of the teachings of N.E. Vvedenskii, Moskva, Medgiz, 1952

9. Monthly List of Russian Accessions, Library of Congress, February, 1953. Unclassified.

UFLYAND, Yu. (Prof.)

Physiologists

N. Ye. Vvedenskiy; 100th anniversary of birth. Khirurgiia no. 4, 1952

9. Monthly List of Russian Accessions, Library of Congress, August 1952 1953, Uncl.

UFLYAN, Yu. M.

Sanitation - Congresses

Joint conference of scientific student societies of the Leningrad Institute of Sanitation and Hygiene and of the Kiev Medical Institute. Gig. i san., No. 8, 1952.

9. Monthly List of Russian Accessions, Library of Congress, December 1952 ~~1953~~, Uncl.

UFLYAND, Yu. M., Prof.

Vvedenskiy, Nikolay Yevgen'yevich, 1952-1922.

Foremost Russian physiologist; 100th anniv. of N. Ye. Vvedenskiy's birth. Terap. arkh. 24, No. 2, 1952.

9. Monthly List of Russian Accessions, Library of Congress, Sept. 1952 ~~1953~~, Uncl.

UFLYAND, Yu. M.

Reorganization of innervation of antagonsitic nerves. Fiziol. zh. SSSR 38 no.2:247-257 Mar-Apr 1952. (CLML 22:3)

1. Department of Physiology, Leningrad Sanitary-Hygienic Medical Institute.

UFLYAND, Yu.M.

USIYEVICH, M.A.

"Basic stages in the development of N.E. Vvedenskii's theory." IU.M. Ufliand. Reviewed by M.A. Usievich. Zhur.vys.nerv.deiat. 3 no.2:324-327 Mr-Ap '53. (MLRA 6:6)

(Nervous system) (Ufliand, IUlii Mikhailovich)

UFLYAND, Yu.M.

Changes in the reciprocal innervation of antagonistic muscles in man following tendon transplantation. Uch.zap.Len.un. no.164:208-241 '54. (MLRA 10:3)

(MOVEMENT, PSYCHOLOGY OF) (MUSCLES--INNERVATION)
(TENDONS--TRANSPLANTATION)

UFLYAND, Yu.M.

Stable focuses of inhibition in the central nervous system in the development of pathological processes. Uch.zap.Len.un.no.176:171-188 '54. (INHIBITION) (MLRA 9:9)

UFLYAND, Yu.M. (Leningrad).

Role of chronaxy research; remarks on D.N.Nasonov's and D.L. Rozental's article "The time factor in evaluating the irritability of tissues." Fiziol.zhur.40 no.1:106-114 Ja-F '54. (MLRA 7:2)

(Tissues) (Nasonov, D.N.) (Nervous system)

EXCERPTA MEDICA Sec 2 Vol 12/10 Physiology Oct 59

4748. FORMATION OF A NEW TYPE OF COORDINATION UPON SEPARATE TRANSPLANTATION OF ONE OF THE HEADS OF A MUSCLE (Russian text) - Uflyand Yu. M. and Fridman S. Ya. Leningrad Med. Inst. of Sanit. and Hyg.; Nat. Inst. of Childhood Orthop., Leningrad - TRUDY LEN. SAN.-GIG. MED. INST. 1956, 29 (40-52)

Among children with flaccid paralysis (as a result of poliomyelitis) and spastic paralysis (Little's disease), an electromyographical study was made of the reorganization of the function of a transplanted muscle head into the antagonistic one. Several months after being transplanted onto the patella, the biceps femoris muscle is incorporated in a new extensor function, also preserving, however, in the majority of cases, its participation in the old flexor function ('dual function'). Not infrequently the untransplanted (short) head is also drawn into this new extensor function to some extent, and its activity in patients with spastic paralysis (as distinct from the flaccid variety) was in general noticeably weakened under these conditions. When the gastrocnemius muscle was transplanted to the back of the foot in patients with flaccid paralysis, reorganization was accomplished with greater difficulty, while in patients with spastic paralysis no satisfactory reorganization took place.

(S)

UFLYAND Yu M.

USSR/Human and Animal Physiology - The Nervous System. V-10

Abs Jour : Ref Zhur - Biol., No 2, 1958, 8965

Author : Yu.M. Uflyand

Inst :

Title : New Data on the Physiology of the Motor Analysor

Orig Pub : Probl. funktsion. morfol. dvigatel'n. apparata Leningrad, Medgiz, 1956, 178-197

Abstract : According to the data of the author and his coworkers, when a muscle is transferred to the site of its antagonist the excitability and chronaxie of the muscle are reorganized so that they tend to approach the properties of this antagonist; in the case of the muscle's prolonged activity under conditions of isotonic contraction (e.g., after tenotomy or tenonectomy), its excitability declines, and there occurs a gradual weakening of the influx of excitation from the central nervous system; the author explains this by the emergence in connection with the weakening of

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USSR/Human and Animal Physiology - The Nervous System. V-10

Abs Jour : Ref Zhur - Biol., No 2, 1958, 8965

the flow of proprioceptive impulses. Isometric activity (e.g., in cases of ankylosis) does not exert a noticeable effect on innervation processes, After a tenontomyoplastic transplant, a muscle under new topographical conditions gradually develops the capacity to contract in participation in a new movement, antagonistic to the old one. The author stresses the conditioned reflex character of the observed reorganization of motor practices.

Card 2/2

USSR / Human and Animal Physiology. Neuro-muscular Physiology. T-9

Abs Jour : Ref Zhur - Biologiya, No 1, 1959, No. 3724

Author : Uflyand, Yu. M.; Fridman, S. Ya.
Inst : AS Georgian SSR
Title : Effect of Muscle Tension on Its Functional Properties

Orig Pub : Probl. sovrem. fiziol. nervn. i myshechn. sistem. Tbilisi, AN GruzSSR, 1956, 465-474

Abstract : The increased contraction effect of a tired skeletal muscle after stretching is conditioned upon the action on the nerve endings in the muscle. Increased contraction of the cardiac muscle when the intracardiac pressure also rises, basically depends upon stimulation of the nervous elements. The isotonic character of muscular contractions in the intact animal, as well as in patients with injury to the tendon, makes the functional state of the muscle and its innervation worse.

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USSR / Human and Animal Physiology. Neuro-muscular Physiology. T-9

Abs Jour : Ref Zhur - Biologiya, No 1, 1959, No. 3724

The isometric character of muscular contractions in animal tests as well as in patients with immobility of individual joints has relatively little influence on the state of the muscle and its innervation. A small relaxation of the usual tension of the animal muscle worsens its state and innervation. In chronic changes of the muscular tension, a degree of tension was established in which the indices for the state of the muscle and its innervation were actively held on the optimal level. A prolonged isometric work regimen had a relatively favorable effect on the functional state of the muscle and its innervation as compared with a prolonged isotonic work regimen.

Card 2/2

UFLYAND Iu M.

USSR/Human and Animal Physiology - The Nervous System. V-8

Abs Jour : Ref Zhur - Biol., No 4, 1958, 18506

Author : Yu.M. Uflyand

Inst : The Leningrad Medical Institute of Sanitation and Hygiene and The National Institute of Childhood Orthopedics.

Title : Muscle An tagonism in the Light of the Teachings of I.P. Pavlov.

Orig Pub : Tr. Leningr. san.-gigien. med. in-ta i n.-i detsk. ortoped. in-ta, 1956, 29, 9-25

Abstract : The work of the author and co-workers is presented on the reorganization of the function of the muscles of the thigh and leg to an antagonistic one following appropriate transplantation of the tendons.

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UFLYAND, YU-M.

USSR/Human and Animal Physiology - The Nervous System. V-8

Abs Jour : Ref Zhur - Biol., No 4, 1958, 18508

Author : Yu. M. Uflyand and S.Ya. Fridman

Inst : The Leningrad Medical Institute of Sanitation and Hygiene and The National Institute of Childhood Orthopedics.

Title : The Formation of a New Type of Coordination Upon Separate Transplantation of One of the Heads of a Muscle.

Orig Pub : Tr. Leningr. san.-gigien. med. in-ta i n.-i. detsk. ortoped. in-ta, 1956, 29, 40-52

Abstract : Among children with flaccid paralysis (as a result of poliomyelitis) and spastic paralysis (Little's disease), an electromyographical study was made of the reorganization of the function of a transplanted muscle head into the antagonistic one. Several months after being transplanted onto the patella, the long head of the biceps femoris

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USSR/Human and Animal Physiology - The Nervous System. V-8

Abs Jour : Ref Zhur - Biol., No 4, 1958, 18508

muscle is incorporated in a new extensor function, also preserving, however, in the majority of cases, its participation in the old flexor function ('dual function'). Not infrequently the untransplanted (short) head is also drawn into this new extensor function to some extent, and its activity in patients with spastic paralysis (as distinct from the flaccid variety) was in general noticeably weakened under these conditions. When the gastrocnemius muscle was transplanted to the back of the foot in patients with flaccid paralysis, reorganization was accompli-shed with greater difficulty, while in patients with spastic paralysis no satisfactory reorganization took place.

Card 2/2

USSR / Human and Animal Physiology. Neuromuscular Physiology. T

Abs Jour: Ref Zhur-Biol., No 9, 1958, 41676.

Abstract: in association with application of plaster of Paris casts and immobilization of joints and also those disorders of motion which are caused by section of tendons and teno-muscular transplantation. A brief physiological characteristic of the status of the locomotor system in flaccid postpoliomyelitic paralysis and in spastic paralysis of cerebral origin is described. Bibliography, 23 titles. -- F. I. Mumladze.

Card 2/2

UFLYAND, Yu.

USSR/Human and Animal Physiology - Neuro-Muscular Physiology. V-11

Abs Jour : Ref Zhur - Biol., No 1, 1958, 4368

Author : P. Kisyelyev, V. Nikolayev, S. Rego, Yu. Uflyand, S. Fridman

Inst : Leningrad medical Institute of Sanitation and Hygiene, and Scientific-Research Pediatric Orthopedic Institute.

Title : Electromyography as a Method of Physiological Evaluation of the Motor Apparatus in Paralyses after Poliomyelitis.

Orig Pub : Tr. Lenigr. san.-gigiyen. med. in-ta i n.-i. dyetsk. ortopyed. in-ta, 1956, 29, 176-196

Abstract : In 150 children from 7 to 15 years old who have had poliomyelitis from 5 to 10 years ago, activity potentials were recorded by special silver bipolar electrodes (plates). Electromyograms of various muscles were similar,

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USSR

USSR/Human and Animal Physiology - Neuro-Muscular Physiology. V-11

Abs Jour : Ref Zhur - Biol., No 1, 1958, 4368

in principle, and closely related to the motor capacity. The weakened activity of the affected muscles was always reflected by a decreased frequency and amplitude of the muscular biocurrents produced by voluntary contractions. On the affected side, the frequency of the electric oscillations and their amplitude were markedly lower than those of the symmetrical healthy muscle. Sometimes, in cases of complete paralysis of some muscles, when their contractions were no more observable, electromyograms showed rare oscillations (10-20 per second). This proves the presence, in the paralyzed muscles, of single neuromotor units still having a normal nervous connection with the spinal cord and the brain. The authors think that the results of the experiments show that, after poliomyelitis, there are foci of long-lasting inhibition in the cellular formations of the spinal cord.

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UFLYAND, YU. M.

USSR/Human and Animal Physiology - The Nervous System. V-8

Abs Jour : Ref Zhur - Biol., No 4, 1958, 18515

Author : Yu.M. Uflyand, S.I. Rego and S.Ya. Fridman

Inst : The Leningrad Medical Institute of Sanitation and Hygiene and The National Institute of Childhood Orthopedics.

Title : The Nature of Muscle Innervation in Children with Spastic Paralysis (According to the Data of Electromyography).

Orig Pub : Tr. Leningr. san.-gigien. med. in-ta i n.-i. detsk. ortoped. in-ta, 1956, 29, 295-305

Abstract : The EMG of the muscles of the thigh and knee in voluntary contraction under conditions close to isometric revealed a reduction in amplitude and rhythm of the principal waves and an increase in the frequency of the small oscillations. The greatest disturbances in innervation were seen in the gastrocnemius and biceps femoris muscles, a fact wich is

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USSR/Human and Animal Physiology - The Nervous System. V-8

Abs Jour : Ref Zhur - Biol., No 4, 1958, 18515

linked with the development of contracture. The EMG for the patellar and Achilles tendon reflexes, along with the usual diphasic potential, showed small additional spikes. According to the authors, the EMG in cases of spastic paralysis shows evidence of increased irradiation of excitation. In spastic hemiparesis, in contrast to Little's disease, sharp asymmetry was usually noted in the electrical activity of the homologous muscles of both legs.

Card 2/2

UFLYAND, Yu.M., prof.; FRIDMAN, S.Ya., starshiy nauchnyy sotrudnik (Leningrad)

"Methods for determining electric excitation of muscles of the extremities." Reviewed by IU.M.Ufliand, S.IA.Fridman. Ortop., travm.protez. 19 no.1:81 Ja-F '58. (MIRA 11:4)

1. Kazanskiy nauchno-issledovatel'skiy institut vosstanovitel'noy khirurgii i ortopedii Minzdrava RSFSR.
(MUSCLE) (ELECTROPHYSIOLOGY)

UFLYAND, Yu.M., prof.; GOLOVINSKAYA, N.V., starshiy nauchnyy sotrudnik; FRIDMAN, S.Ya., starshiy nauchnyy sotrudnik

Physiological studies of late results of tendon and muscle transplantation in poliomyelitis. Ortop.travm.i protez. 20 no.8:8-15 Ag '59. (MIRA 12:11)

1. Iz fiziologicheskoy laboratorii (zav. - prof. Yu.M. Uflyand) Nauchno-issledovatel'skogo detskogo ortopedicheskogo instituta im. G.I. Turnera (dir. - prof. M.N. Goncharova).

(POLIOMYELITIS, surgery)
(TENDONS, transplantation)
(MUSCLES, transplantation)

UFLYAND Yu. M.

AGGEYEV, P.K., prof.; ANDREYEVA-GALANINA, Ye.TS., prof.; BASHENIN, V.A., prof.; BENENSON, M.Ye., doktor med.nauk; VYSHEGORODTSEVA, V.D., prof.; GESSEN, A.I., dotsent; GUTKIN, A.Ya., prof.; ZHDANOV, D.A., prof., laureat Stalinskoy premii; ZNAMENSKIY, V.F., prof.; KLIONSKIY, Ye.Ye., prof.; MONASTYRSKAYA, B.I., prof.; MOSKVIN, I.A., prof.; MUCHNIK, L.S., kand.med.nauk; PETROV-MASLAKOV, M.A., prof.; RUBINOV, I.S., prof.; RYSS, S.M., prof.; SMIRNOV, A.V., prof., zasluzhennyy deyatel' nauki; TIKHOMIROV, P.Ye., prof.; TROITSKAYA, A.D., prof.; UDINTSEV, G.N., prof.; UFLYAND, Yu.M., prof.; FEDOROV, V.K., prof.; KHILOV, K.L., prof., zasluzhennyy deyatel' nauki; VADKOVSKAYA, Yu.V., prof.; MARSHAK, M.S., prof.; PETROV, M.A., kand.med.nauk; POSTNIKOVA, V.M., kand.med.nauk; RAPOPORT, K.A., kand.biolog.nauk; ROZENTUL, M.A., prof.; YANKELEVICH, Ye.I., kand.med.nauk; LYUDKOVSKAYA, N.I., tekhn.red.

[Book on health] Kniga o zdorov'e. Moskva, Gos.izd-vo med.lit-ry, Medgiz, 1959. 446 p. (MIRA 12:12)

1. Chlen-korrespondent Akademii meditsinskikh nauk SSSR (for Zhanov, Udintsev). 2. Leningradskiy sanitarno-gigiyenicheskiy meditsinskiy institut (for all, except Vadkovskaya, Marshak, Petrov, Postnikova, Rapoport, Rozentul, Yankelevich, Lyudkovskaya).
(HYGIENE)

UFLYAND, Yu.M.; VASIL'YEV, L.D.; DELOV, V.Ye.; ZHUKOV, Ye.K.

Professor I.M. Vul; obituary. Fiziol.zhur. 45 no.12:1513 D '59. (MIRA 13:4)

(VUL, IL'IA MOISEEVICH, 1892-1958)

UFLYAND, Yu. M.

Electromyographic studies of the coordinative relations of the nerve centers. Trudy LSGMI 64:40-55 '61. (MIRA 15:7)

(ELECTROMYOGRAPHY) (NERVES)

UFLYAND, Yu. M.; TIKHOMIROVA, N. A.; FARFEL', M. N.

Fifty years of activity for the Department of Physiology of the Leningrad Sanitary Hygienic Medical Institute. Trudy LSGMI 64: 7-39 '61. (MIRA 15:7)

(PHYSIOLOGY)

UFLYAND, Yu.M.; KAZAKOVA, L.N.; KUNEVICH, V.G.

Prolonged congestive inhibition of the vascular centers. Trudy 1-go MMI 11:230-238 '61. (MIRA 15:5)

1. Kafedra fiziologii Leningradskogo sanitarno-gigiyenicheskogo instituta i fiziologicheskaya laboratoriya (zav. - prof. Yu.M.Uflyand) imeni Turnera.
(POLIOMYELITIS) (BLOOD VESSELS--INNERVATION)

UFLYAND, Yu.M., prof., red.

[Progress of modern physiology of the nervous and muscular systems] Dostizheniia sovremennoi fiziologii nervnoi i myshechnoi sistemy. Moskva, Nauka, 1965. 201 p. (MIRA 18:3)

1. Akademiya nauk SSSR. Ob"yedinennyy nauchnyy sovet po probleme "Fiziologiya cheloveka i zhivotnykh."

UFLYAND, Yu.M.

Electromyography in the solution of some problems of practical medicine. Nerv. sist. no.4:146-148 '63 (MIRA 18:1)

1. Leningradskiy sanitarno-gigiyenicheskiy meditsinskiy institut.

L 28076-66 SOURCE CODE: UR/0239/65/051/006/0646/0652 19

ACC NR: AP6018170 B

AUTHOR: Uflyand, Yu. M.; Stoma, M. F.

ORG: Department of Normal Physiology, Sanitary Hygienic Medical Institute, Leningrad (Kafedra normal'noy fiziologii Sanitarno-gigiyenicheskogo meditsinskogo instituta)

TITLE: Assimilation of rhythms by proprioceptive reflex centers in an intact organism 22

SOURCE: Fiziologicheskiy zhurnal SSSR, v. 51, no. 6, 1965, 646-652

TOPIC TAGS: rabbit, bioelectric phenomenon, reflex activity

ABSTRACT: The biocurrents of the calf muscle of unanesthetized rabbits were determined after a rhythmic motion at a constant frequency was imposed on this muscle by bending the foot of the animals periodically backwards. After awhile the biocurrents assumed the frequency of the imposed motion. Furthermore, the assimilated frequency was retained by the biocurrents for a certain period after the enforced motion had been discontinued. Upon prolonged irritation of the proprioceptors of the muscle by applying rhythmic motion, the lability of the reflex arc of the myotactic reflex of the muscle increased. The synchronism of the discharges of the motor neuron with the rhythmic mechanical stimuli was particularly pronounced at a frequency of stimuli of 40 per sec, while the increase of lability developed to a maximum extent at frequencies of the order of 100 per sec. The phenomenon of assimilation of rhythms by reflex centers was discovered by A. A. Ukhtomskiy. Orig. art. has: 4 figures. [JPRS]

SUB CODE: 06/ SUBM DATE: 04Feb65/ ORIG REF: 003

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UFNALEWSKI, S.

Organization of the economy of tools. p. 182. (TECHNIKA MOTORYZACYJNA, Vol. 4, No. 6, June 1954, Warszawa, Poland)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.

S/081/63/000/005/071/075

L 12314-63

41

AUTHOR: Ufnowski, W.

TITLE: A production method for viscose fibers, especially staple fibers

PERIODICAL: Referativnyy zhurnal, Khimiya, no. 5, 1963, 624, abstract 5T341P (Polish patent 43708, 20.02.61)

TEXT: In the manufacture of viscose (particularly staple) fibers the latter are gathered into a braid, which is passed through a trough, containing a solution of acids, and then is subjected to additional more lengthy coagulation in a special chamber. The solution is circulated between this special chamber and the troughs of the spinning machines. A. Myshkin.

[Abstractor's note: Complete translation]

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